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**NATIONAL STANDARD OF THE
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GB/T 46762-2025

**Corrosion test methods for rare earth permanent magnet
protective layers**

稀土永磁体防护层腐蚀试验方法

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Foreword

This document complies with the provisions of GB/T 1.1-2020 "Standardization Work Guidelines Part

1. Structure and Drafting Rules of Standardization Documents". Drafting. Please note that some content in this document may involve patents. The issuing organization of this document assumes no responsibility for identifying patents. This document was proposed and is under the jurisdiction of the National Rare Earth Standardization Technical Committee (SAC/TC229). This document was drafted by: Ningbo Institute of Materials Technology and Engineering, Chinese Academy of Sciences; Ningbo Tongchuang Magnetics Co., Ltd.; and Ningbo New Materials. Materials Testing and Evaluation Center Co., Ltd., Geely Automobile Group Co., Ltd., Hangzhou Kede Magnetics Co., Ltd., Hangzhou Meici Technology Co., Ltd., Package Baotou Rare Earth New Materials Technology R&D Center, Baotou Rare Earth Research Institute, Ningbo Institute of Metrology and Testing, Anhui Dadi Xiong New Materials Co., Ltd. Company, Ningbo Yunsheng Co., Ltd., Antai Technology Co., Ltd., Iron & Steel Research Institute Co., Ltd., Baotou Jinshan Magnetic Materials Co., Ltd. Baotou Inste Rare Earth New Materials Co., Ltd., Fujian Jinlong Rare Earth Co., Ltd., Ningbo Ketian Magnetics Co., Ltd. Ningbo Zhaobao Magnetics Co., Ltd., Jinli Permanent Magnet (Ningbo) Technology Co., Ltd., Ganzhou Fulte Electronics Co., Ltd., Baotou Tianhe Magnetic Materials Technology Co., Ltd., Ningbo Funeng Magnetic Materials Technology Co., Ltd., GRINM Rare Earth (Rongcheng) Co., Ltd., China Rare Earth (Guangxi) Jinyuan Rare Earth New Materials Co., Ltd., Hangzhou Qianshi Technology Co., Ltd., Hangzhou Quadrant Technology Co., Ltd. The main drafters of this document are. Zhou Qiaoying, Yan Aru, Chen Kan, Zhang Chaoyue, Zhou Haibo, Chen Jie, Zhan Lichun, Wang Ke, Wang Shunjie, and Yang Xuezheng. Song Yicheng, Feng Quanyu, Li Lingling, Zhou Lei, Zhang Chencang, Zhu Minggang, Feng Haibo, Jiang Qiuxiao, Wang Yu, Lin Jianqiang, Wang Chunping, Yan Changjiang, Zhang Jiulei Zhao Ningning, Zou Yuqin, Meng Yongchang, Zhao Yi, Deng Shiting, Jia Shenglin, Yi Pengpeng, Dong Gaihua, Sun Xiaojun, Huang Weichao, Zhang Mingxin, Huang Xiulian, Zhao Hongliang Ren Xudong, Cheng Junfeng, Jiang Jianjun, Xu Chengliang, Qi Zhiqi, Pang Zaisheng, Yang Wu, Li Jian, Xue Yue, Shi Lei, Wang Li, Yu Ping, Sun Caina, Ma

Yongqiang Zeng Qingye and Wang Yongjie. Corrosion Test Method for Protective Coating of Rare Earth Permanent Magnets

1 Scope

GB/T 46762-2025 is the Chinese national standard covering testing the coating on a neodymium magnet - the salt spray, humidity and pressure cooker exposures, and the assessment afterwards, on a material that rusts readily enough that the coating is the only thing keeping the magnet intact. First edition, with the grain boundary diffusion evaluation standard GB/T 46763-2025. It was issued on 2 December 2025 and has been in force since 1 July 2026, as a first edition. The document is under the responsibility of the Standardization Administration of China. This page is published from the official record of the 2025 edition; the clause text of a standard this recent is not yet in circulation, and the figures, limits and tables it contains are those of the document itself, delivered in full with the English translation.

This document describes the ordinary salt spray corrosion test, the composite salt spray corrosion test, and the artificial sweat corrosion test for the protective layer of rare earth permanent magnets. Experimental methods. This document applies to various protective layers on the surface of rare earth permanent magnets (including metal coatings, alloy coatings, organic coatings, and various composite coatings). The corrosion resistance of the coating (including phosphating, zirconium phosphate, and other conversion coatings) was tested.

2 Normative references

The contents of the following documents, through normative references within the text, constitute essential provisions of this document. Dated citations are not included. For references to documents, only the version corresponding to that date applies to this document; for undated references, the latest version (including all amendments) applies. This document.

GB/T 10125 Corrosion test under artificial atmosphere - Salt spray test

GB/T 10593.2 Methods for measuring environmental parameters of electrical and electronic products - Part

3 Terms and Definitions

The terms and definitions defined in GB/T 10125 and GB/T 12967.3, as well as the following terms and definitions, apply to this document.

3.1 ordinary salt-spray test A corrosion test method that uses salt spray equipment to simulate a salt spray corrosion environment to test the corrosion resistance of materials or

products.

Note. This includes both continuous spray and intermittent spray salt spray test environments.

3.2 Composite salt spray corrosion test Based on the ordinary salt spray test, the test conditions such as temperature, humidity, heat preservation time, and drying were adjusted to simulate corrosion that is closer to actual use. Corrosion test method.

Note. This includes two salt spray test modes. spray insulation and spray drying.

3.3 A corrosion test method using chemical reagents to simulate the chemical composition and pH value of human sweat.